School of Information Resources and Library Science

Proposal for a Certificate in Digital Information Management

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I. Certificate Name and Description

The School of Information Resources and Library Science (SIRLS) in the College of Social and Behavioral Science requests approval for a new certificate to be titled: *Post-Baccalaureate Certificate in Digital Information Management*. This stand-alone certificate, presented here for approval, is the first certificate in a proposed program of four certificates, approved separately and implemented over a period of five years. The Business Plan for these Certificates is attached as Appendix B, and the Financial and Sustainability Model, showing the viability of the Digital Information Management Certificate as the first certificate, and also the projected finances of the certificate program as a whole, appears as Appendix A.

The *Post-Baccalaureate Certificate in Digital Information Management* provides students with the theoretical knowledge, conceptual frameworks and practical skills required to create, maintain and curate collections of digital information in libraries, archives and records management departments.

The proposed certificate is managed by the School of Information Resources and Library Science (SIRLS) in the College of Social and Behavioral Sciences (SBS). A SIRLS Certificate Committee will be constituted to provide management and oversight of the proposed certificate. The committee will consist of the SIRLS director, Dr. Jana Bradley, the chair of the curriculum committee (currently Dr. Cheryl Malone), a member of the faculty at large whose area of expertise is digital information management and Leslie Kent Kunkel, Assistant Director of SIRLS. A Certificate Advisory Committee will be appointed from distinguished practitioners in the relevant domains.

II. Certificate Requirements

Requirements

The certificate will consist of 18 credit hours, all delivered virtually: 12 units will consist of required courses and 6 units will be chosen from a list of approved electives.

**Required Courses (new):**

The four required courses are all new courses.
The first required course is “Introduction to Collections of Digital Information.” This course introduces students to digital libraries, digital records management and digital archives including data curation. Students will understand how these disciplines differ, what elements of technology and practice underpin all of them, and the role of digital information collections and data curation in academia, government and the private sector.

The second required course is “Introduction to Applied Technology.” This course will provide students with a foundation in the practical use of technologies needed for digital information management within the library, archival, and records management domains.

The third required course is “Digital Preservation.” Digital preservation is a central issue underlying digital information management in all domains. The course covers issues, methods, and techniques in planning and implementing digital preservation strategies.

The fourth required course, "Digital Collections and Data Curation Internship," is the capstone course in the certificate program. Each student will be required to find an internship opportunity working with a digital information repository, and at the same time, participate in discussion, lecture, group collaboration, and homework with others taking the internship at the same time. Presenting an electronic poster integrating knowledge acquired in coursework with practice in the internship is the exit requirement for the certificate.

**Elective Courses:**

Students choose two elective courses (6 units) to complete the certificate, selecting courses that best fit their career goals. One elective will be developed as new courses; the remaining electives will be SIRLS current courses, chosen from an approved list.

The new elective will be “Digital Libraries.” This course covers issues, technologies, and trends in the design, development, and management of large collections of multimedia information.

In addition to Digital Libraries, students may select electives from the following list of current SIRLS courses:

- IRLS 572: Government Information: Policy and Resources
- IRLS 530: Cataloging and Metadata management
- IRLS 540: Introduction to Archives
- IRLS 571: Introduction to Information Technologies
- IRLS 573: Information Technologies in Libraries
- IRLS 570: Database Development & Management
- IRLS 640: Advanced Archives
- MIS 596B Organizations, Privacy and Security, co-developed by the University of Arizona Eller College of Management and the School of Public Administration and Policy, cross-listed at SIRLS.
- Other relevant courses as approved by the Certificate committee

**Virtual Certificate:**

The Post-Baccalaureate Certificate in Digital Information Management is a virtual certificate. The certificate website will provide certificate information, as well as functionality for announcements, chat rooms, and other virtual technologies to build and maintain community. The SIRLS Certificate Program (see Appendix B), and therefore this certificate as the first in the program, is a collaboration between the office of Continuing Education and Academic Outreach (CEAO). Under this collaboration CEAO will provide registration, collect tuition and fees, and provide a virtual course environment through negotiated arrangements with an appropriate vendor. The Digital Information Management certificate is proposed to pilot full-service virtual course delivery through a vendor, likely at this point to be eCollege. In the event that this vendor relationship does not work out, other virtual delivery course providers will be pursued by SIRLS and CEAO.

**Student Learning Outcomes:**

Through a combination of required courses and electives chosen to augment and extend the student’s knowledge of digital information management in his/her areas of career interest, students will:

- Understand the conceptual approaches to collection creation, curation and management underlying digital libraries, digital archives and digital records management, including how they are similar and how they differ;
• Understand the issues in designing, developing, organizing, providing access, and preserving digital collections in the domain of the student’s choice;

• Understand the elements of technological practice underpinning digital libraries, digital archives and digital records management;

• Have practice experience in digital collection creation and curation.

Evaluation in coursework, reflected in grades, assesses the achievement of these outcomes. The capstone course includes an electronic poster integrating academic knowledge with the practical experience of the internship.

III. Student Admittance/Advising/Completion

In general, and unless otherwise noted, administrative requirements for the post-baccalaureate certificate in Digital Information Management are the same as for matriculated students in the master’s program. All university and Graduate College policies apply. Key policies are summarized below.

Admittance

Certificate students will apply through the Continuing Education and Academic Outreach (CEAO), completing forms as necessary for SIRLS, CEAO and the Graduate College.

SIRLS will apply the same admissions criteria for certificate candidates as its current master’s program, with the exception of not requiring the Graduate Record Examination. The Certificate Committee will also serve as the admissions committee for the certificate. Admission to the SIRLS post-baccalaureate certificate program is granted by the director of SIRLS, upon recommendation of the SIRLS Certificate Committee, and the Graduate College. To be admitted, students must meet the requirements of both the Graduate College and SIRLS. In addition, they must submit separate applications to the Graduate College and to SIRLS.

Applicants must have:

• A bachelor’s degree from the University of Arizona or from an accredited college or university recognized by the University of Arizona (Graduate College and SIRLS requirement)
• A grade-point-average of 3.0 or higher (Graduate College and SIRLS requirement)

• Students will not be allowed to register for classes until they have met the university's immunization requirements. For more information, see the Campus Health Service's immunization requirements.

• Two letters of recommendation from persons familiar with the applicant’s academic abilities and/or professional potential and who can speak to the student's ability to complete a graduate program and their interest and commitment to the library and information profession.

• A written statement of introduction and interest in the certificate program

• A resume or curriculum vitae

**Provisional Admission**

Students who do not meet the stated requirements of the Graduate School and SIRLS will be considered as candidates for provisional admission. Provisional admission requires concurrence from both SIRLS and the Graduate College. Decisions for provisional admission are based on strong indicators of potential success in a graduate program and in the profession present in the applicant’s file.

**Concurrent Enrollment**

Students who meet all admissions requirements may enroll concurrently in SIRLS master’s program or SIRLS doctorate program and the certificate program during the last semester of the program of first enrollment. Students must complete all required courses for both the degree and the certificate.

**Duplicate Units**

Under the conditions of concurrent enrollment, SIRLS master’s students may apply for admission to the certificate program. Upon admittance, students may apply 6 units from their master’s program to the certificate, assuming that these courses fill the certificate requirements.
Also under the conditions of concurrent enrollment, certificate students may apply for admission to the master’s program. Upon acceptance, students may apply 6 units from the certificate to the SIRLS master’s degree. These units may be counted toward the degree as electives or as other curricular opportunities, as determined by the student’s advisor.

**Transfers**

No transfer work from other universities will be allowed for the certificate.

**Degree/Certificate Changes**

Students enrolled in the certificate program may change to master’s degree seeking status with the approval of SIRLS’ director and the Admissions Committee. Students must be in good standing and meet all requirements for admission to the master’s program in effect at the time of the request. Up to 6 credits may be transferred from the certificate program to the master’s degree requirements.

**Time To Completion**

All coursework for the Certificate in Digital Information Management must be completed within three years.

**Student Advising**

During start-up, student advising for the certificate will be handled by members of the certificate committee. Once enrollments support the addition of a full-time professor of practice and a certificate coordinator (see section on faculty and appendix A), these positions will handle advising. Advising information will be available on the certificate website.

**IV. Certificate and Student Outcomes**

**Student Outcomes:**

Academic outcomes for individual students have been detailed in an earlier section. Assessment of these outcomes occurs through evaluation in coursework, reflected in feedback and grades, and also through the capstone course. The capstone course includes
an electronic poster integrating academic knowledge with the practical experience of the internship. Certificate level review of student outcomes is provided below.

**Certificate Outcomes:**

Certificate outcomes are of two kinds: 1) those specific to the Digital Information Management certificate, and 2) those that apply to all certificates in the program.

Outcomes specific to this certificate, and assessment plans, are detailed below:

- Attracting students of diverse content backgrounds to pursue careers combining these backgrounds with the theories, concepts, and techniques underlying digital collection management. Statistics will be kept on distribution of student backgrounds and will be reviewed annually as part of recruiting.

- Providing certificate courses for each cohort in a timely manner that supports 1-2 year admission-to-completion schedules. Registrations, progress-toward-degree, and time-to-completion statistics will be reviewed annually.

- Graduating students who have met the student outcomes. This programmatic review of student achievement will be assessed on a cohort basis by the capstone course instructor, who will report annually to the Certificate Committee.

- Meeting student needs in the academic and student services domains. Course evaluations will be reviewed according to departmental policies. A cohort-based exit survey will be part of the capstone course, and data provided to the Certificate Committee.

- Providing libraries, archives, and records management offices in Arizona and nationally with graduates who have disciplinary knowledge and technical skills needed for positions libraries, archives and other organizations where the management of digital record collections is critical. Placement statistics will be kept and reviewed annually by the Certificate Committee.

Outcomes that apply to this and all other certificates, with assessment plans, are detailed below:
• Recruiting and graduating a diverse student body. Diversity is a high priority for SIRLS in all its programs. Matriculation and graduation will be monitored and recruitment strategies adjusted accordingly. SIRLS has found that financial support is essential to minority recruitment and has a goal that 50% of certificate scholarships will further diversity. This goal will be monitored annually.

• Maintaining the sustainability of the certificate program. The Certificate Business and Financial Plan outlines a structure for the sustainability of individual certificates and of the program as a whole. Progress will be monitored annually and any deviations from the Plan that negatively impact the certificates will be addressed.

V. Student Demand

Anticipated Student Enrollment:

The Certificate Business and Financial Plans (Appendices A and B) specify a minimum of 15 students per annual cohort and a maximum of 25 students. We anticipate minimum enrollments during the first year of the certificate (following a recruiting year), growing to mid-point enrollments in 1-3 years. Enrollment will be capped at 25 students per cohort.

Collaborations:

The primary collaborations for this certificate will be with Arizona professional communities who have identified a critical need for digital collection management and curation and who have worked with SIRLS in planning this certificate. SIRLS will constitute a Certificate Advisory Board, consisting of these individuals, who will be key contacts in recruiting students, providing internship locations, and assisting with placement. The Advisory Board will also be useful in identifying potential part-time faculty.

Program Demand/Need:

The explosion of born-digital documents along with the accelerating rate of digitization of records of all kinds of information create new opportunities for professionals well grounded in
traditional library and archival theory and current practice who also possess the technical skills needed to create, maintain and manage collections of digital information. For example, Myburgh (2003)\(^1\) analyzes current job postings and demonstrates that today’s Library and Information Science (LIS) graduates face increasing demands for information and communications technology skills in the job market, and in some cases, competition from computer science and MIS professionals for technical positions.

As the number of digital information collections of all kinds grows nearly exponentially, demand for knowledgeable information specialists outpaces the supply of qualified candidates. Information stored in printed materials – including books, journals, newspapers, mail, mass market periodicals and office documents – is relatively steady, with growth of 7% reported for the period 1999 to 2002. In contrast, the amount of information stored on the web alone during the same period tripled.\(^2\) The majority of government and business records are now created in digital formats and may never be printed. New categories of documents, including emails, instant messaging, and digitally encoded video and sound recordings, challenge archivists and record specialists. Digital information is not a future the professions should be planning; it is the current reality that the professions must actively address.

Increasingly, graduate schools are turning to post-baccalaureate and post-master’s certificate programs as a means to bridge the skills gap within the context of a rigorous academic program. Welch and Syverson (1997)\(^3\) and Patterson (1999)\(^4\) list several reasons graduate schools are developing certificate programs including: providing a more flexible response to an emerging need for specialized training; providing an easier path to graduate education, especially for persons who have been out of school for some time; providing a recruitment path for students who pursue degree programs following acquisition of a certificate; providing an opportunity for

\(^{3}\) Syverson, Peter and Welch, Stephen, “Post-Baccalaureate Certificates: A First Look At Graduate Certificate Programs Offered By CGS Member Institutions,” CGS Communicator, Council of Graduate Schools, 30 No. 9 (November 1997)
a discipline or interdisciplinary group to take their first steps in offering graduate level programming; providing an opportunity for students to develop an expertise which may help in advancing their careers, or in changing careers; and providing a new revenue stream for the university.

Properly developed and administered, a graduate certificate program can address the challenge of providing both an academic and practical education for librarians, archivists, and records specialists seeking to acquire a firm understanding of digital information collections and data curation. The program should be developed in consultation both with academic scholars and practitioners, administered primarily by a qualified academic professor or professor of practice, require an undergraduate degree, and be related to a graduate degree program. The certificate may serve as a stand-alone post-graduate certificate, a concentration within an academic master’s program or PhD minor, or it may serve as a post-master’s add-on offering evidence of additional specialization and expertise. In contrast merely to adding electives to an existing master’s program, the certificate, by its nature, incorporates a diversity of classes all designed to inform an area of specialization while providing the disciplinary knowledge and conceptual framework that characterize the profession.

While the ALA-accredited Master’s degree in library and information science (LIS) will remain the gold standard for professionals in the field for the foreseeable future, the increasing specialization and interdisciplinary requirements of open jobs in libraries, archives and records collections foster a growing interest in alternatives that serve current staffing demands and projected candidate shortages. Traditionally structured graduate programs do not always provide a manageable and affordable environment for today’s diverse range of graduate students. Welch and Syverson (1997) describe them as often older with career and family responsibilities and the need to attend on a part-time basis. Further, many currently in the workforce do not always desire a full degree program, or often have an existing graduate degree and need to update knowledge and skills, or pursue additional concentrations in new areas of study.

Based on student interest in current course offerings that feature aspects of technology and digital information management, coupled with current market conditions for technology oriented librarians and a dearth of other programs that offer fully on-line certificates, SIRLS
projects that a minimum of 15 students per year will enter the Digital Information Management Program on a two year track. SIRLS optimistically forecasts 25 students per year could enter the program once it is established, with a realistic target of 20 students average per year within five years of program implementation.

SIRLS’ complete financial model for the certificate is described in the appendix, including revenue projections for best and worst case scenarios and all required human resources including adjunct faculty, an administrative coordinator and professors of practice. SIRLS will collaborate with the Office of Continuing Education to offer up to four certificate programs, to be submitted for approval. Each of the proposed certificates, including the certificate in Digital Information Management will stand on its own and provide revenue in excess of expenses even under worst case projections. As new certificate programs are implemented, revenues will fund increased program administration, academic appointments and additional course offerings.

**VI Expected Faculty and Resource Requirements**

**Current Faculty Involvement**

A SIRLS Certificate Committee will be constituted to provide oversight of the certificate program. The committee will consist of SIRLS Professor and Director Dr. Jana Bradley, the current chair of the Curriculum Committee (at this time Dr. Cheryl Malone) and faculty members in the area of expertise of the certificate. Dr. Bradley holds a Ph.D. in library and information science from the University of Illinois and will provide general administrative oversight and chair the committee. Dr Cheryl Malone holds a Ph.D. in Library and Information Science from the University of Texas at Austin and will provide the liaison with the curriculum committee. An additional faculty member will be selected from those with both interest and expertise. Oversight of the certificate program is expected to fall within the usual departmental service requirements of faculty.

Student recruitment, placement and advising will, at first, be managed by Leslie Kent Kunkel. Ms. Kunkel is currently the Assistant Director for SIRLS and has been with the program as coordinator of academic advising since 2004. an M.B.A. from the Anderson School of
Management and an M.L.S. from the Graduate School of Library and Information Science, both at UCLA.

SIRLS electives will also serve as electives for the certificate program. The combined certificate enrollment, plus SIRLS enrollment, is expected not to exceed SIRLS usual cap on enrollment. SIRLS faculty who are likely to teach classes with certificate students are Dr. Martin Frické who holds a Ph.D. from the London School of Economics, Dr. Anita Coleman who holds a PhD in library and information science from the University of Illinois, Dr. Cheryl Malone, mentioned above, and current part-time faculty member, Stuart Glogoff, from the Center for Computing and Information Technologies. Courses taught by SIRLS full-time faculty will be part of their assigned teaching load.

**Additional Faculty Needed**

No additional full-time faculty are required to support the certificate program; however enrollment modestly above worst case projections will support one additional faculty member (a professor of practice, academic year appointment). In the first year, and subsequently with only the minimum number of enrolled students, adjunct faculty selected for their expertise in aspects of Digital Information Management will assume teaching responsibilities for required courses (three core courses each offered once a year), as illustrated in our financial model. Electives and other courses can be absorbed by current course deliveries.

As enrollment increases, higher revenue will sustain a professor of practice who will assume a full teaching load and oversee any remaining adjunct faculty. As the number of certificates offered increases, revenues will also support an administrative assistant.

Because the program is designed to provide revenue in excess of expenses at any enrollment level above minimum projections, the certificate program actually increases the capacity of SIRLS overall and relieves current faculty by increasing capacity at a rate greater than the new duties of either the current faculty or the new additions.

**Current Student Enrollment**

In the fall of 2004, 252 students were enrolled in the master’s program, eight in the doctoral program and ten in the undergraduate minor. In 2004, SIRLS had 235-250 matriculated
master’s students. Gender balance was roughly 80% female and 20% male. Students of ethnic origin other than white accounted for roughly 22% of the student body, a figure close to the demographic for the state. Hispanic students are our second largest cohort, with Native Americans third. Seventy percent of our student body is under forty and 40% under 30. While 50% of these students majored in the humanities or social sciences, the other 50% represents a wide range of undergraduate interests including science and technology, business, education and fine arts. Eighty percent of our current student body lived in Arizona at the time of application. The remaining 20% came from twenty-two states and one foreign country. About half of our students indicated at the time of application that they intended to study in the campus based program. Over 40% of our current students hold a post-graduate degree.

Enrollment tracked over the last four semesters show significant growth

![SIRLS Enrollment - 2004 - 2006](image)

The median number of credits taken per semester by matriculated master’s students is 9.

**Current Faculty Appointments**

SIRLS has nine full time faculty as follows:

- Jana Bradley, Professor and Director
- Anita Sundaram Coleman, Assistant Professor
- William (Bill) Edgar, Assistant Professor
- Don Fallis, Associate Professor
- Martin Frické, Associate Professor
• Cheryl Knott Malone, Associate Professor
• Kay Mathiesen, Senior Lecturer
• Patricia Montiel Overall, Assistant Professor
• William Welburn, Associate Professor

There is currently one tenure-track full-time full-year vacancy, which is in the process of being filled.

**Proposed Student and Faculty Resources**

SIRLS does not expect the certificate program to cannibalize its master’s program. Based on surveys of departments that have implemented them, 90% of respondents indicate this has not happened and in fact, certificate programs often attract students who would not otherwise be in graduate programs. These surveys also show that certificate programs frequently serve as a path towards a full master’s degree.

Because the Digital Information Certificate fills a niche not addressed by the current master’s program, SIRLS expects demand for its master’s program to increase to the point where SIRLS can both maintain its optimum enrollment and increase quality of its graduates. Digital Information Certificate enrollment is anticipated to range from 15 to 25 new students annually who are pursuing this specialization. Students will finish the certificate in as little as one or no longer than two years.

SIRLS projects its current full time faculty to remain level over the next three years. If certificate enrollment is sufficient, revenues will fund one additional academic year appointment for a professor of practice.

When all of SIRLS proposed certificates are approved and implemented, revenues will fund two to three academic year appointments for professors of practice in addition to a manager who will assume responsibility for recruitment and program administration.

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Current Budget

A current copy of SIRLS budget is attached. Because the proposed certificate is at least slightly profitable even under worst case projections, SIRLS does not anticipate any impact on current budget assumptions other than those included in the Financial Model and Sustainability appendix.

VII. Supporting Letters

Letters from Jana Bradley, Director of SIRLS, and Ed Donnerstein, Dean of the College of Social and Behavioral Sciences are attached, verifying that the proposed certificate has received faculty approval through appropriate channels and that the unit has the resources to support the proposed certificate.

VIII. Appendices (Separate Attachments)

Appendix A: Financial and Sustainability Model

Appendix B: SIRLS Certificate Program: Business Plan

Appendix C: SIRLS Current Budget